



Email Address Internationalization

A presentation by Igor Lidin, TCI

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History

SMTP is one of the oldest net protocols:

- 1982 — RFC 821, 7 bit ASCII based, no i18n
- 1994 — 8BITMIME extension, 8 bit messages
- 2003 — International Domain Names — i18n in domain (right) part of email address; xn– punycode is ASCII-compatible, no changes in SMTP
- 2010 — first IDN ccTLD delegated
- 2012 — SMTPUTF8 extension — RFC 653x: UTF-8 in headers and mailbox names — i18n in unique (left) part of email address; not ASCII-compatible.

Email address types

❖ Good old email address:

- latinname@domain.com

❖ IDN domain email address:

- latinname@домен.рф
- latinname@xn--d1acufc.xn--p1ai

❖ EAI email address:

- игорь@лидин.рф

Why I18N in Email addresses?

- ❖ IDN TLDs are advancing, absence of EAI is a major limiting factor
- ❖ Native language communication
- ❖ Exchange addresses by voice
- ❖ Easy typing using local keyboard layout
- ❖ Native language search queries

**The future of internet is I18N and full
UNICODE support!**

EAI standards

Group of RFC 653x:

- RFC 6530: Overview and Framework for Internationalized Email
- RFC 6531: SMTP Extension for Internationalized Email (SMTPUTF8)
- RFC 6532: Internationalized Email Headers
- RFC 6533: Internationalized Delivery Status and Disposition Notifications

Technical problems

- ❖ **Incompatible SMTP — server MUST support SMTPUTF8 to receive EAI mail**
- ❖ **All other mail server infrastructure must support UTF-8:**
 - POP3/IMAP, LMTP, mail storage
 - indexing, searching, filtering, scripting, anti-virus, anti-spam (incl. DKIM)
 - mailing list software, etc
- ❖ **MUAs must also support EAI!**

All links in chain must be EAled!

Acceptance problems

Services do not accept EAI addresses:

- Major mail providers (but Google is ok!).
Waiting for mass adoption.
- Government services
- Internet infrastructure services (domain registration, TLD ops, hosters, providers)
- TLS certificates (worldwide CAs, local government CAs, etc)
- Tons of proprietary PC and web software!
- even good old DNS (SOA contact email, DMARC records, etc)

Acceptance in Russia

- ❖ For now, almost no one allows EAI in account names!
- ❖ EAI receive (MX has SMTPUTF8 flag):
 - Google Gmail — Yes! (announced in 2014)
 - Почта@Mail.ru — no
 - Яндекс.Почта — no
 - Рамблер.Почта — no
 - Microsoft Outlook.com — no
 - Yahoo.Почта — no
 - Pochta.ru — no

Google Gmail

The screenshot shows the Gmail interface for an email titled "Проверка SMTPUTF8". The interface includes a top navigation bar with icons for back, download, warning, trash, folders, labels, and a "More" dropdown. Below the navigation bar, the email title "Проверка SMTPUTF8" is displayed next to a "Inbox" label with a close button. The sender is identified as "Igor Lidin" with a "to me" dropdown menu. The email body begins with "This is". A metadata popup is overlaid on the email content, displaying the following information:

- from: **Igor Lidin** <игорь@лидин.рф>
- to: igorlidin@gmail.com
- date: Sat, Sep 3, 2016 at 5:45 PM
- subject: Проверка SMTPUTF8
- mailed-by: лидин.рф
- signed-by: лидин.рф
- encryption: Standard (TLS) [Learn more](#)

On the left side of the interface, there is a profile picture of a woman and a "Click" button. At the bottom left, a storage usage indicator shows "0.3 GB (1%) of" with a "Manage" link.

Яндекс.Почта

От: MAILER-DAEMON@vair.ial.ru (Mail Delivery System)

Кому: игорь@лидин.рф

Тема: Undelivered Mail Returned to Sender

Написано: 4 сентября 2016 г., 16:15:02 (Sun, 4 Sep 2016 16:15:02 +0300 (MSK))

This is the mail system at host mail.ial.ru.

I'm sorry to have to inform you that your message could not be delivered to one or more recipients. It's attached below.

For further assistance, please send mail to postmaster.

If you do so, please include this problem report. You can delete your own text from the attached returned message.

The mail system

<igorlidin@yandex.ru>: SMTPUTF8 is required, but was not offered by host mx.yandex.ru[213.180.193.89]

EAI implementations

❖ Postfix 3.0+

- most complete implementation
- requires LDAP with SMTPUTF8 or local delivery via command line tool
- does not transform IDNs, need to configure both forms

❖ Exim 4.86+

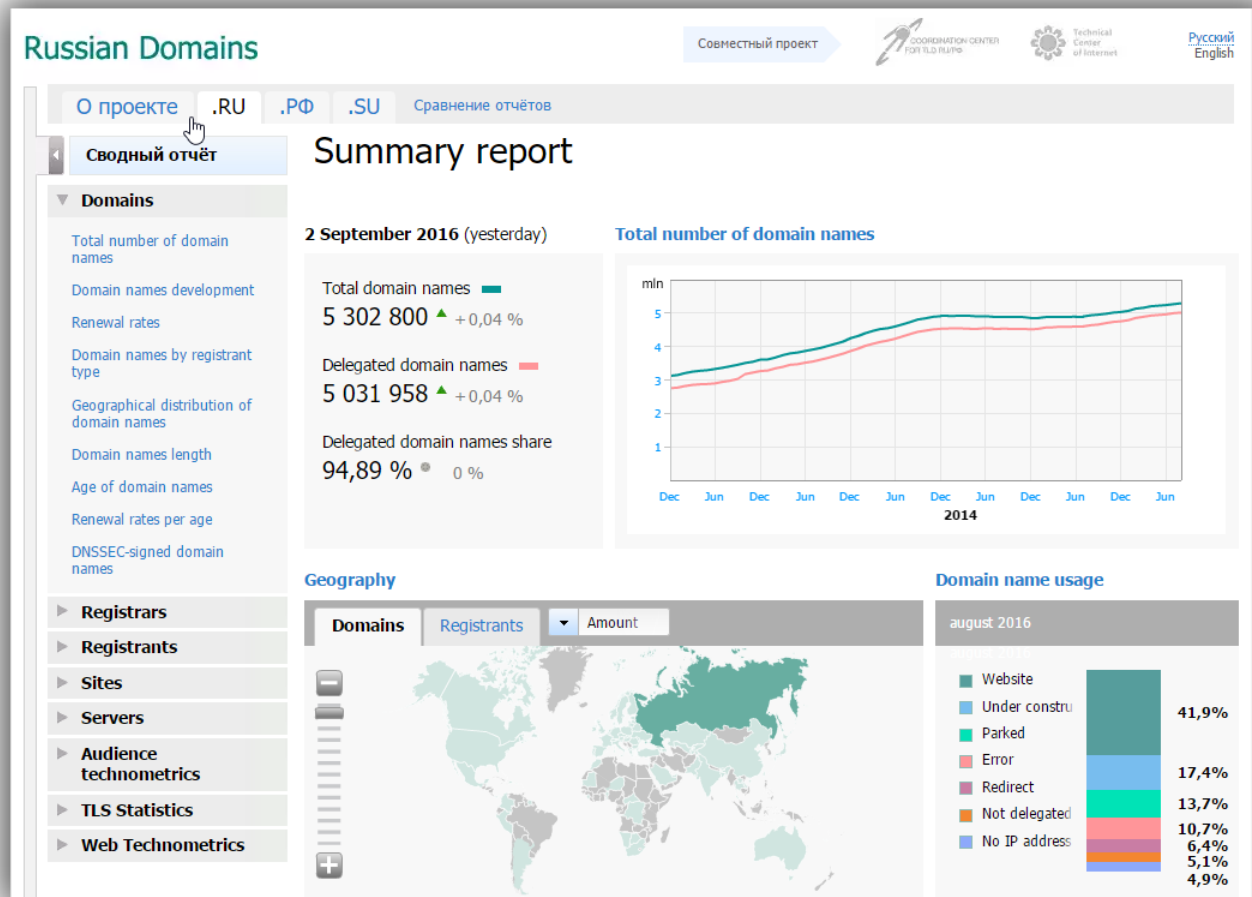
- experimental status

❖ Mutt

- CLI MUA, good for testing

StatDom.ru by TCI

StatDom.ru and TLDStat.com domain statistics engines by TCI



StatDom MX research

❖ RUNet MX crawling, August 2016

- About 150.000 MXs were crawled
- Only 620 (0.4%) has SMTPUTF8 flag!
- 276 (44.5%) of them use Postfix mail server
- 67 (10.8%) of them use Exim mail server
- 68919 (45.8%) has STARTTLS support

❖ StatDom will do regular MX crawling

TCl testing server

- ❖ TCl provides proof-of-concept SMTPUTF8 system @тест-почты.рф
- ❖ Testing RFC 653x in common internet e-mail software: Postfix, Exim, Dovecot, Roundcube, Thunderbird, etc
- ❖ Welcome everyone to communicate and test own RFC 653x compliance



Support EAI!

Test your mail system for EAI support!

Ask your provider to support EAI!

Support EAI in your own services!



Questions?

Write me to:

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il@tcinet.ru